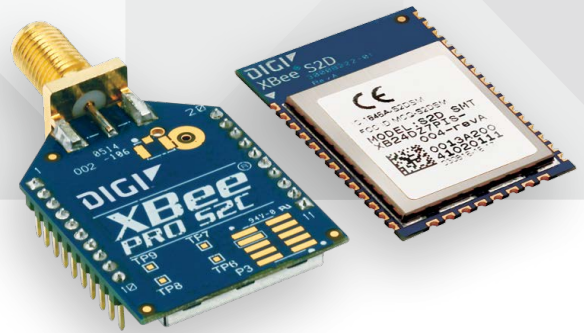




ZIGBEE® RF MODULES  
FOR OEMS



# DIGI XBEE® AND DIGI XBEE-PRO® ZIGBEE

Embedded ZigBee modules provide OEMs with a simple way to integrate mesh technology into their application

Digi XBee and Digi XBee-PRO ZigBee RF modules provide cost-effective wireless connectivity to electronic devices. They are interoperable with other ZigBee PRO feature set devices, including devices from other vendors\*.

Digi XBee and Digi XBee-PRO ZigBee modules are ideal for applications in the energy and controls markets where manufacturing efficiencies are critical. The Serial Peripheral Interface (SPI) provides a high-speed interface and optimizes integration with embedded microcontrollers, lowering development costs and reducing time to market.

Products in the Digi XBee family require little to no configuration or additional development. Programmable

versions of the Digi XBee and Digi XBee-PRO ZigBee module make customizing applications easy. Programming directly on the module eliminates the need for a separate processor. Because the wireless software is isolated, applications can be developed with no risk to RF performance or security.

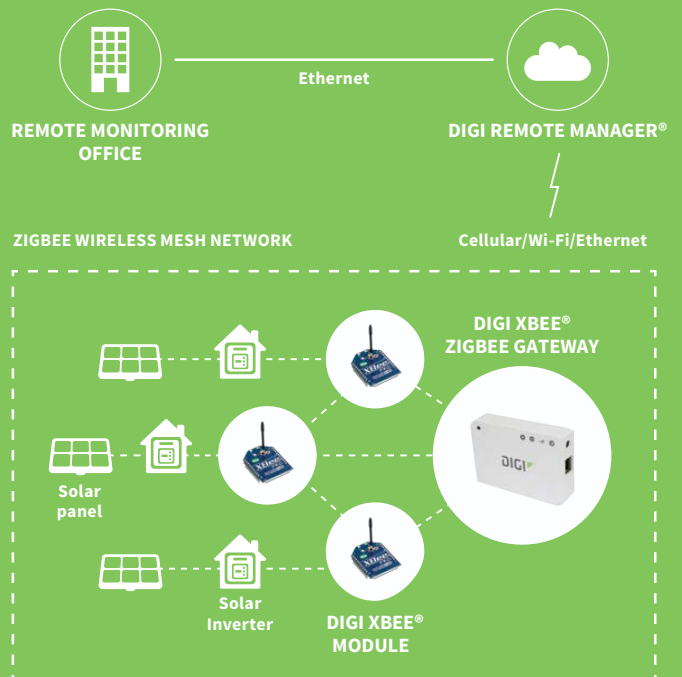
Digi's ZigBee compatible module is based on the Ember EM35x (EM357 and EM3587) system on chip (SoC) radio ICs from SiliconLabs, utilizing 32-bit ARM Cortex™ M3 processor. The S2D EM3587 version has a larger memory footprint for customers who may want to upgrade to Thread, an IPv6 based networking stack.

\*Interoperability requires the ZigBee Feature Set or ZigBee PRO Feature Set to be deployed on all devices. Contact Digi Support for details.

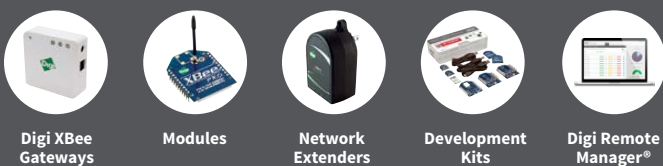
## BENEFITS

- Programmable versions with on-board microprocessor enable custom ZigBee application development
- Through-Hole and Surface Mount form factors enable flexible design options
- Link budgets of 110 dB for Digi XBee and 119 dB for Digi XBee-PRO
- Industry-leading sleep current
- Firmware upgrades via UART, SPI or over the air (OTA)
- Thread updatable on the S2D EM3587 variant for maximum flexibility

## APPLICATION EXAMPLE



## RELATED PRODUCTS



SPECIFICATIONS	Digi XBee® S2C ZigBee		Digi XBee-PRO® S2C ZigBee		Digi XBee® S2D ZigBee Thread Ready
	Standard	Programmable	Standard	Programmable	Standard
<b>PERFORMANCE</b>					
TRANSCEIVER CHIPSET	Silicon Labs EM357 SoC			Silicon Labs EM3587 Soc	
DATA RATE	RF 250 Kbps, Serial up to 1 Mbps				
INDOOR/URBAN RANGE*	Up to 200 ft (60 m)	Up to 300 ft (90 m)		Up to 200 ft (60 m)	
OUTDOOR/RF LINE-OF-SIGHT RANGE*	Up to 4000 ft (1200 m)	Up to 2 miles (3200 m)		Up to 4000 ft (1200 m)	
TRANSMIT POWER	3.1 mW (+5 dBm) / 6.3 mW (+8 dBm) boost mode	63 mW (+18 dBm)		3.1 mW (+5 dBm) / 6.3 mW (+8 dBm) boost mode	
RECEIVER SENSITIVITY (1% PER)	-100 dBm / -102 dBm boost mode	-101 dBm		-100 dBm / -102 dBm boost mode	
<b>FEATURES</b>					
SERIAL DATA INTERFACE	UART, SPI				
CONFIGURATION METHOD	API or AT commands, local or over-the-air (OTA)				
FREQUENCY BAND	ISM 2.4 GHz				
FORM FACTOR	Through-Hole, Surface Mount			Surface Mount	
INTERFERENCE IMMUNITY	DSSS (Direct Sequence Spread Spectrum)				
ADC INPUTS	(4) 10-bit ADC inputs				
DIGITAL I/O	15				
ANTENNA OPTIONS	Through-Hole: PCB Antenna, U.FL Connector, RPSMA Connector, or Integrated Wire SMT: RF Pad, PCB Antenna, or U.FL Connector				
OPERATING TEMPERATURE	-40° C to +85° C				
DIMENSIONS (L X W X H) AND WEIGHT	Through-Hole: 0.960 x 1.087 in (2.438 x 2.761 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm)	Through-Hole: 0.960 x 1.297 in (2.438 x 3.294 cm) SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm)		SMT: 0.866 x 1.33 x 0.120 in (2.199 x 3.4 x 0.305 cm)	
<b>PROGRAMMABILITY</b>					
MEMORY	N/A	32 KB Flash / 2 KB RAM	N/A	32 KB Flash / 2 KB RAM	N/A
CPU/CLOCK SPEED	N/A	HCS08 / up to 50.33 MHz	N/A	HCS08 / up to 50.33 MHz	N/A
<b>NETWORKING AND SECURITY</b>					
PROTOCOL	ZigBee PRO 2007, HA-Ready with support for binding/multicasting				
ENCRYPTION	128-bit AES				
RELIABLE PACKET DELIVERY	Retries/Acknowledgements				
IDS	PAN ID and addresses, cluster IDs and endpoints (optional)				
CHANNELS	16 channels		15 channels		16 channels
<b>POWER REQUIREMENTS</b>					
SUPPLY VOLTAGE	2.1 to 3.6V		2.7 to 3.6V		2.1 to 3.6V
TRANSMIT CURRENT	33 mA @ 3.3 VDC / 45 mA boost mode	47 mA @ 3.3 VDC / 59 mA boost mode	120 mA @ 3.3 VDC	120 mA @ 3.3 VDC	33 mA @ 3.3 VDC / 45 mA boost mode
RECEIVE CURRENT	28 mA @ 3.3 VDC / 31 mA boost mode	42 mA @ 3.3 VDC / 45 mA boost mode	31 mA @ 3.3 VDC	45 mA @ 3.3 VDC	28 mA @ 3.3 VDC / 31 mA boost mode
POWER-DOWN CURRENT	<1 µA @ 25° C	1.5 µA @ 25° C	<1 µA @ 25° C	1.5 µA @ 25° C	<3 µA at 25° C
<b>REGULATORY APPROVALS</b>					
FCC, IC (NORTH AMERICA)	Yes		Yes		Yes
ETSI (EUROPE)	Yes		No		Yes
RCM (AUSTRALIA AND NEW ZEALAND)	Yes		Yes		No (Coming Soon)

\*Range figure estimates are based on free-air terrain with limited sources of interference. Actual range will vary based on transmitting power, orientation of transmitter and receiver, height of transmitting antenna, height of receiving antenna, weather conditions, interference sources in the area, and terrain between receiver and transmitter, including indoor and outdoor structures such as walls, trees, buildings, hills, and mountains.

PART NUMBERS	DESCRIPTION
<b>S2C MODULES</b>	
XB24CZ7PIT-004	Digi XBee ZigBee Through-Hole, PCB Antenna
XB24CZ7WIT-004	Digi XBee ZigBee Through-Hole, Wire Antenna
XB24CZ7UIT-004	Digi XBee ZigBee Through-Hole, U.FL
XB24CZ7SIT-004	Digi XBee ZigBee Through-Hole, RPSMA
XB24CZ7PITB003	Programmable Digi XBee ZigBee Through-Hole, PCB Antenna
XB24CZ7WITB003	Programmable Digi XBee ZigBee Through-Hole, Wire Antenna
XB24CZ7UITB003	Programmable Digi XBee ZigBee Through-Hole, U.FL
XB24CZ7SITB003	Programmable Digi XBee ZigBee Through-Hole, RPSMA
XB24CZ7PIS-004	Digi XBee ZigBee SMT, PCB Antenna
XB24CZ7RIS-004	Digi XBee ZigBee SMT, RF Pad
XB24CZ7UIS-004	Digi XBee ZigBee SMT, U.FL
XB24CZ7PISB003	Programmable Digi XBee ZigBee SMT, PCB Antenna
XB24CZ7RISB003	Programmable Digi XBee ZigBee SMT, RF Pad
XB24CZ7UISB003	Programmable Digi XBee ZigBee SMT, U.FL
XBP24CZ7PIT-004	Digi XBee-PRO ZigBee Through-Hole, PCB Antenna
XBP24CZ7WIT-004	Digi XBee-PRO ZigBee Through-Hole, Wire Antenna
XBP24CZ7UIT-004	Digi XBee-PRO ZigBee Through-Hole, U.FL
XBP24CZ7SIT-004	Digi XBee-PRO ZigBee Through-Hole, RPSMA
XBP24CZ7PITB003	Programmable Digi XBee-PRO ZigBee Through-Hole, PCB Antenna
XBP24CZ7WITB003	Programmable Digi XBee-PRO ZigBee Through-Hole, U.FL
XBP24CZ7SITB003	Programmable Digi XBee-PRO ZigBee Through-Hole, RPSMA
XBP24CZ7PIS-004	Digi XBee-PRO ZigBee SMT, PCB Antenna
XBP24CZ7RIS-004	Digi XBee-PRO ZigBee SMT, RF Pad
XBP24CZ7UIS-004	Digi XBee-PRO ZigBee SMT, U.FL
XBP24CZ7PISB003	Programmable Digi XBee-PRO ZigBee SMT, PCB Antenna
XBP24CZ7RISB003	Programmable Digi XBee-PRO ZigBee SMT, RF Pad
XBP24CZ7UISB003	Programmable Digi XBee-PRO ZigBee SMT, U.FL
<b>S2D MODULES</b>	
XB24DZ7PIS-004	Digi XBee ZigBee - Thread Ready SMT, PCB Antenna
XB24DZ7RIS-004	Digi XBee ZigBee - Thread Ready SMT, RF Pad Antenna
XB24DZ7UIS-004	Digi XBee ZigBee - Thread Ready SMT, U.FL Antenna
<b>S2C KIT</b>	
XKB2-Z7T-WZM	Digi XBee ZigBee Mesh Kit, worldwide
<b>S2D KIT</b>	
XKB2-Z7T-WTZM	Digi XBee ZigBee Mesh Kit, worldwide

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